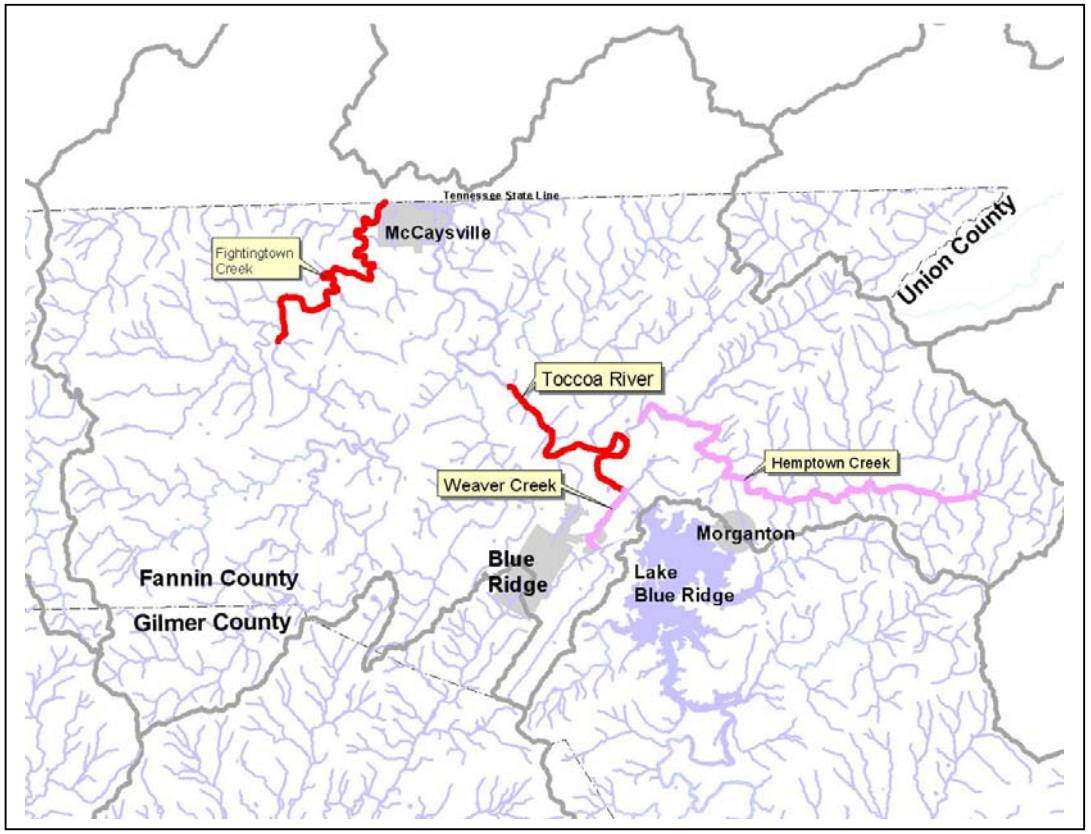
STATE OF GEORGIA
TIER 2 TMDL IMPLEMENTATION PLAN REVISION 1
Segment Name Fightingtown Creek
Tennessee River Basin
April 28, 2006

Local Watershed Governments Fannin County and City of McCaysville



I. INTRODUCTION

Total Maximum Daily Load (TMDL) Implementation Plans are platforms for evaluating and tracking water quality protection and restoration. These plans have been designed to accommodate continual updates and revisions as new conditions and information warrant. In addition, field verification of watershed characteristics and listing data has been built into the preparation of the plans. The overall goal of the plans is to define a set of actions that will help achieve water quality standards in the state of Georgia.

This implementation plan addresses the general characteristics of the watershed, the sources of pollution, stakeholders and public involvement, and education/outreach activities. In addition, the plan describes regulatory and voluntary practices/control actions (*management measures*) to reduce pollutants, milestone schedules to show the development of the management measures (*measurable milestones*), and a monitoring plan to determine the efficiency of the management measures.

Table 1. IMPAIRMENTS

	IMPAIRED SEGMENT LOCATION	IMPAIRMENT	TMDL ID
Fightingtown Creek	County Road 159 to Stateline	Fecal Coliform Bacteria	TEN0000020

II. GENERAL INFORMATION ABOUT THE WATERSHED

Write a narrative describing the watershed, HUC 10# 0602000302. Include an updated overview of watershed characteristics. Identify new conditions and verify or correct information in the TMDL document using the most current data. Include the size and location of the watershed, political jurisdictions, and physical features that could influence water quality. Describe the source and date of the latest land cover/use for the watershed. Describe and quantify major land uses and activities that could influence water quality. See the "Instructions for Completing the Georgia Total Maximum Daily Load (TMDL) Tier 2 Implementation Plan" for more information on what to include.

The HUC 10# 0602000302 watershed area is found principally in Fannin County, Georgia although small portions of the watershed are located in Tennessee to the north and Gilmer County to the south. The principal streams found in the watershed are the Toccoa River, Fightingtown Creek, Weaver Creek and Hemptown Creek. The total watershed area is 118,956 acres. The terrain is mountainous with significant high peaks and steep slopes with numerous valleys containing streams. The latest land use surveys were conducted in 2004 as part of the process to update the Fannin County and Gilmer County Comprehensive Plans. The data were derived from tax parcel information provided by the County Tax Appraisers, which was augmented by windshield surveys. The following table indicates the land use acreages per each classification in those jurisdictions. The table does not include data from the areas located in Tennessee. These acreages and percentages may differ from the land cover information provided in the TMDL.

Land Use (HUC10# 0602000302)	**Acreage**	**% of Total Area**
Agriculture	5663.5	5%
Commercial	936.6	1%
Industrial	314.1	<1%
Multi-family Residential	51.8	<1%
Single family Residential	26684.4	22%
Parks, Recreation	123.9	<1%
Public, Institutional	534.3	<1%
Right-of-way	3945.9	3%
Transportation, Communication, Utilities	29.5	<1%
Conservation	19460.7	16%
Vacant, undeveloped	61210.8	51%
Total	**118956.2**	**100%**
Source: Fannin County Comprehensive Plan, October, 2004; Gilmer County Comprehensive Plan, October, 2004		

The conservation land is located principally in the Chattahoochee National Forest, although the Tennessee Valley Authority also owns land around Lake Blue Ridge, a large man-made reservoir located on the Toccoa River. Other political jurisdictions in the watershed include the cities of Blue Ridge, McCaysville, and Morganton. The watershed area is growing rapidly – with Fannin County's population increasing by 23 % between 1990 and 2000. Most of the growth is residential and much of that consists of retirement homes and/or second homes. Except for within the cities of Blue Ridge and McCaysville, all residential development is served by individual sewage systems. Considerable commercial development is occurring along State Routes 5 and 515 in the Blue Ridge vicinity. Agricultural activity consists primarily of small cattle and horse farms. There are also a number of poultry producers in the watershed.

The Blue Ridge Adopt-A-Stream program is active within the watershed, and conducts chemical and biota water quality monitoring activities on Weaver Creek and Mineral Springs Creek. There are no agricultural watershed planning activities such as PL-566 Watershed Planning presently occurring in the watershed. There are no Section 319(h) grant projects currently being conducted in the watershed.

{FIGHTINGTOWN CREEK}

COMPLETE THE FOLLOWING TABLES FOR AND NARRATIVES ABOUT EACH IMPAIRED STREAM IN THE WATERSHED.

STREAM SEGMENT NAME	LOCATION	MILES/AREA	DESIGNATED USE	PS/NS
Fightingtown Creek	County Road 159 to State line.	7 miles	Fishing	NS

III. SOURCES AND CAUSES OF STREAM SEGMENT IMPAIRMENT LISTED IN TMDLs

After reviewing the TMDLs written for this stream, complete the following tables with the information found in the TMDLs. List each parameter for which the stream segment is impaired and the water quality standard not met. See the "Instructions for Completing the Georgia Total Maximum Daily Load (TMDL) Tier 2 Implementation Plan" for the water quality standards. Enter the needed reduction from the TMDL. Describe the sources and causes of each impairment identified in the TMDLs.

Table 2. SOURCES OF IMPAIRMENT AS INDICATED IN TMDLs

PARAMETER 1	WQ STANDARD	SOURCES OF IMPAIRMENT	NEEDED REDUCTION FROM TMDL
Fecal Coliform	1,000 per 100 ml (geometric mean Nov. – April) and 200 per 100 ml (geometric mean May - Oct.)	Failing Septic Systems	70 %
		Agriculture (cattle operations)	
		Wildlife	
		Urban Storm Water run-off	

IV. IDENTIFICATION AND RANKING OF POTENTIAL SOURCES OR CAUSES OF IMPAIRMENT

INVESTIGATE AND EVALUATE the extent and relative contributions from causes or sources of the impairment for each parameter listed in Table 2. Write a narrative describing efforts made or procedures used to verify the significance and extent of the sources or causes of each impairment listed in the TMDLs. Include: 1) involvement of stakeholder group; 2) review of land cover data; 3) field surveys; and 4) other pertinent sources of information consulted.

An initial meeting of the Fannin County Stakeholders group was conducted on August 4, 2005. Members involved represented the Forest Service, County Commission Chairman, County Land Development Office, County Environmental Health Office, farmers, land developers and the Natural Resources Conservation Service. A discussion of land use within the HUC12 watershed with stakeholders indicated that the watershed is a mostly

undeveloped, rural area of the county, although there is increasingly more residential development taking place. A review of aerial photography, tax parcel data, and recent land use data compiled for the County's 2004 Comprehensive Plan update confirms information provided by the stakeholders. The total area of the HUC 12 watershed is 19,432.45 acres. Land use within the HUC 12 watershed containing the impaired stream segment consists of vacant, undeveloped land (53 %), residential land (24 %), agriculture land (6 %), and conservation (12 % - in U.S. Forest Service ownership). Other minor land uses consist of commercial (.70% - 136 acres), public/institutional (.30 % -59 acres), right of way (2.6%), transportation, utilities & communication (.07%) and parks and recreation (.08%).

Fightingtown Creek HUC 12 Watershed

Land Use Classification	Area (Acres)	% of Total Area
Agriculture	1244.2	6.40%
Commercial	136.12	0.70%
Multi-Family	11.09	0.07%
Public/Institutional	59.05	0.30%
Conservation	2317.47	11.93%
Residential	4731.97	24.35%
Vacant	10345.13	53.24%
Right of Way	505.99	2.60%
Transportation, Communication, Utilities	12.98	0.07%
parks, recreation	50.65	0.26%
water	17.8	0.08%
Total:	**19432.45**	**100.00%**

Source: Fannin County Comprehensive Plan, October, 2004

Field surveys were also conducted in fall of 2005. (See Appendix C for results of the Visual Survey.) Based upon land use data and the visual surveys sources of impairment within the watershed include:

1. **Malfunctioning Septic Systems**. Residential development is the most significant development activity. Per the TMDL Evaluation report prepared by Ga. EPD in January, 2004, Fannin County had 11,999 septic systems in 2001, with 5,086 installed between 1990 and 2000. 402 septic systems were repaired during the same period. The Fannin County Environmental Health office reported that it issued 779 new septic system permits and 54 system repair permits county wide in FY 2005. A considerable amount of the residential land use is for second home use and seasonal occupation. The development pattern is highly scattered at low density with all of it on individual septic systems except for areas located in the City of McCaysville, which provides public sewer services. Lot sizes for residential development are determined by the County's subdivision design and environmental health standards and approval process. Some of the residential land use is located directly on Fightingtown Creek and the many tributaries located in the watershed. Visual observations noted that there are a substantial number of residences located relatively close to the many streams in the watershed.

2. **Active Pasture Run-off, Cattle and horse Access to Streams**. Agricultural activity consists primarily of pasture land with small beef cattle or horse grazing operations. Per the Natural Resources Conservation Service, Fannin County had 4,300 beef cattle, and 200 dairy cattle in 2001. Visual observations confirm the presence of cattle and horses in the watershed. Many of the cattle and/or horse grazing areas are also located adjacent to streams and have direct access to the streams for drinking water. There are no large poultry operations or CAFO operations in the HUC 12 watershed.

3. **Wild Animal Waste**. Approximately 53% of the watershed area is vacant, undeveloped land and 12% is within the U.S. National Forest. The most populous large species is deer estimated at 25 animals per square mile.

4. **Urban Storm Water Run-off /storm sewer system discharges.** Approximately 400 acres of the City of McCaysville is located within the watershed. Of this, approximately 120 acres is developed for residential use, and is served by storm water drainage systems.

5. **Sewer System Leaks.** Approximately 120 acres of the City of McCaysville is located within the watershed and is served by public sewer. The city contains a population of 1,021. There are no known sewer stream crossings within the watershed.

Fightingtown Creek is not a source of public water supply. A source water assessment was completed for Fannin County in December, 2003 and no significant pollution sources were identified in the watershed. The County has adopted and administers the latest soil erosion and sediment control programs within its jurisdiction.

Combining information provided in the TMDL document, stakeholder knowledge, existing watershed assessments, and the watershed evaluation conducted for this plan, identify the potential sources or causes most likely to contribute to each identified impairment (parameter) in Table 3. If available information is inadequate to estimate the extent and relative contribution of significant potential sources or causes, recommend appropriate management actions (watershed assessments, monitoring, etc.) to determine the potential sources or causes and relative contributions. In Table 3, list the significant potential sources or causes of each impairment. Estimate the geographic extent of each potential source or cause as percent of the contributing watershed area, percent of stream miles affected, or number per square mile and enter the appropriate rating (from the following table) in the column entitled "Rating (A)". Estimate the relative contribution of each major source or cause to the pollutant causing the impairment and enter the appropriate rating (from the following table) in the column entitled "Rating (B)". Calculate a relative impact ratings for each source or cause by multiplying "Rating (A)" by "Rating (B)". Comments on the source of information used to determine the extent or contribution may be entered in the applicable columns in Table 3.

The following table provides guidance for rating the estimated extent and portion of the contribution from each potential source and cause.

Estimated Geographic Extent of the Source or Cause in the Contributing Watershed (Percent of area or stream miles)	**Estimated Contribution of the Source or Cause to the Pollutant Load Causing the Impairment** (Percent of load)	**Rating**
None or negligible (approximately 0-5%)	None or negligible (approximately 0-5%)	0.5
Scattered or low (approximately 5-20%)	Scattered or low (approximately 5-20%)	1
Medium (approximately 20-50%)	Medium (approximately 20-50%)	3
Widespread or high (approximately 50% or more)	Widespread or high (approximately 50% or more)	5
Unknown	Unknown	UNK

Table 3. CONCLUSIONS MADE OF POTENTIAL SOURCES OF STREAM SEGMENT IMPAIRMENT

PARAMETER 1: Fecal Coliform .

POTENTIAL SOURCES OR CAUSES	ESTIMATED EXTENT OF CONTRIBUTION		ESTIMATED PORTION OF CONTRIBUTION		*IMPACT RATING (A X B)*
	Comments	***Rating (A)***	**Comments**	***Rating (B)***	
Malfunctioning Septic Systems	Residential use is 24% of land area and all is on septic systems	3	Approximately 30% of all lots are located adjacent to streams	3	9
Active Pasture run-off - cattle & horse access to streams	Agricultural use is 6% of land area	1	Cattle/horse grazing adjacent to streams is sporadically located throughout the watershed	3	3
Wild animal waste	Vacant, undeveloped is 53 % of land area	1	Sporadically located throughout the watershed.	1	1
Urban Storm Water Run-off /storm sewer system discharges	Approximately 1/3 of the City of McCaysville (400 acres) is located within the watershed	.5	Only approx 120 acres is densely settled and served by storm water run-off systems.	.5	.25
Sewer System Leaks and Spills	Approximately 120 acres of the City of McCaysville is served with public sewer	1	There are no known sewer line crossings or lift stations within the watershed.	.5	.50

V. STAKEHOLDERS

PUBLIC INVOLVEMENT AND THE ACTIVE PARTICIPATION OF STAKEHOLDERS is essential to the process of preparing TMDL implementation plans and improving water quality. Stakeholders can provide valuable information and data regarding their community, impaired water bodies, potential causes of impairments, and management practices and activities which may be employed to reduce the impacts of the causes of impairment.

Describe outreach activities to advise and engage stakeholders in the TMDL implementation plan preparation process. Describe the stakeholder group employed or formed to address the impaired segments in the watershed. Summarize the results of the number of attendees and meetings and describe major findings, recommendations, and approvals.

The North Georgia Regional Development Center, with input from the County Commission Chairman, Dr. Richard Volrath formed a Stateholders's Advisory Committee in June, 2005. An initial meeting of the Advisory Committee was held on August 4, 2005 at the Fannin County Courthouse, which was well attended by the members, Commission Chairman Richard Volrath, and Mary Gazaway of Georgia EPD. At the meeting, the RDC presented information regarding the Clean Water Act requirements, the list of impaired streams in Fannin County, water quality monitoring data and the TMDLs that had been prepared by Georgia EPD. The RDC led a discussion on possible sources for the pollutant parameters and sought input from the Advisory Committee members concerning land use and other activities, which may be sources. NGRDC explained that it would be conducting a field survey along the streams to verify potential causes. Visual observations along with aerial photography and recent land use data would be utilized to determine the potential causes. Once causes were identified, the RDC will identify recommended measures that could be utilized to reduce the parameters causing the impairments.

On October 18, 2005, NGRDC in partnership with the CVRDC and the Northwest Georgia Regional Water Resources Partnership conducted a workshop entitled "**Clean Water- the TMDL Link"**, which was attended by the Fannin County Land Development Officer, the Natural Resource Conservation Service and the Georgia Soil and Water Conservation Commission. This workshop provided excellent information on the TMDL process, its requirements, the potential causes for stream impairments, and the various tools that can be utilized to clean up the rivers.

The North Georgia Regional Development Center met with the Stakeholder's Advisory Committee again on January 10, 2006, which was well attended by Committee members as well as Commission Chairman Richard Volrath and Mary Gazaway of Georgia EPD. The purpose of the meeting was to review the draft TMDL Implementation Plan for all impaired streams in Fannin County. NGRDC discussed the results of the field survey and confirmed the conclusions regarding the sources of impairment. A discussion was held regarding proposed implementation measures. All members concurred with the proposed measures.

List the watershed stakeholder advisory group committee members, described in Project Task #1 of the Scope of Services, in following table.

Table 4. STAKEHOLDER ADVISORY GROUP MEMBERS

NAME/ORG	ADDRESS	CITY	STATE	ZIP	PHONE	E-MAIL
Tammy Williams, Fannin County Land Development Officer	400 West Main Street	Blue Ridge	GA	30513	706-632-8361	trwilliams@tds.net
Dr. Richard Volrath, Fannin Co. Commission	400 West Main Street, Suite 100	Blue Ridge	Ga	30513	706-632-2203	
Richard Stanley, Farmer	157 Toccoa Valley Drive	Blue Ridge	GA	30513	706-838-4324	NA
Monica Hoskins, Fannin Co. Environmental Health Officer	P.O. Box 387	Blue Ridge	GA	30513	706-632-3024	mehodskins@gdph.state.ga.us
Joe Webb, landowner	4458 Doublehead Gap Rd.	Blue Ridge	GA	30513	706-838-4575	pjwebb@tds.net
Tina Tilley, U.S. Forest Service	6050 Appalachian Hwy	Blue Ridge	GA	30513	706-632-3031 ext. 102	ttilley@fs.fed.us
Keith Gilmer, Georgia	700 East 2nd Avenue, Suite	Rome	GA	30161	706-295-6131	keith_gilmer@ga.usda.gov

Soil and Water Conservation Commission	J					
Doug Towery, Natural Resources Conservation Service	185 Wellborn Street, Box 3	Blairsville	GA	30512	706-745-2794 ext. 3	doug.towery@ga.usda.gov
Mayor James Finch, City of McCaysville	P.O. Box 6	McCaysville	GA	30555	706-492-4921	NA
Larry Golsen, Blue Ridge Adopt-a-Stream		McCaysville	GA	30555	706-492-2099	larrygol@bellsouth.net

In Appendix A, list the names, addresses, telephone numbers, and e-mail addresses for local governments, agricultural or commercial forestry organizations, significant landholders, businesses and industries, and local organizations including environmental groups and individuals with a major interest in this watershed, as described in Project Task #1 of the Scope of Services. (See Appendix A.)

VI. MANAGEMENT MEASURES AND ACTIVITIES

Identify and list in Table 5A the significant management measures or activities which have or will be taken in the contributing watershed to address sources or causes of the impairment(s). List significant management measures and activities in Column 1 and responsible organizations in Column 2. Describe the measure or activity in Column 3 and sources of funding or resources in Column 4 (you may wish to adapt the generic language included in the "Standard Language for Management Measures and Activities" to local applications). In Column 5, enter one of the following codes describing the status of the measure or activity: (A) installed and active; (AE) active and **will be** enhanced or expanded; (R) required in the future by law, regulation or permit conditions; (P) currently proposed, but not required; and (N/R) **additional new recommended** or (N/E) **recommended enhanced** management measures and activities. In Column 6 enter the rating of the estimated existing or proposed extent of application of the measure or activity or percentage of individual sources to which the management actions have or will be applied (see the following table). In Column 7 enter a rating of the estimated effectiveness of the management measures and activities (see following table). Effectiveness may be estimated by local experts or derived from tables included in the "Standard Language for Management Measures and Activities".

The following table provides guidance for rating the estimated extent and portion of the contribution for each significant potential source and cause.

Estimated Extent of Application or Percentage of Individual Sources to Which the Management Measure or Activity Has or Will be Applied in the Contributing Watershed	**Estimated Effectiveness or Percent Removal of Constituent** (Percent of load)	**Rating**
None or negligible (approximately 0-5%)	None or negligible (approximately 0-5%)	.5
Scattered or low (approximately 5-20%)	Low to medium (approximately 5-25%)	1
Medium (approximately 20-50%)	Medium to High (approximately 25-75%)	3
Widespread or high (approximately 50% or more)	High (approximately 75% or more)	5
Unknown	Unknown	UNK

Table 5A. MANAGEMENT MEASURES AND ACTIVITIES

GENERAL MEASURES APPLICABLE TO ALL PARAMETERS

MEASURE	RESPONSIBILITY	DESCRIPTION	SOURCES OF FUNDING & RESOURCES	STATUS CODE	TARGET DATE	EXTENT RATING (Area, #)	EFFECT. RATING (Reduction)
Georgia Water Quality Control Act (OCGA 12-5-20)	Ga. Environmental Protection Division	Makes it unlawful to discharge excessive pollutants (sediments, nutrients, pesticides, animal wastes, etc.) into waters of the State in amounts harmful to public health, safety, or welfare, or to animals, birds, or aquatic life or the physical destruction of stream habitats	Federal, State, Local Governments	A	In place, on-going		

MEASURES APPLICABLE TO SPECIFIC PARAMETER: __Fecal Coliform Bacteria_.

MEASURE	RESPONSIBILITY	DESCRIPTION	POTENTIALSOURCES OF FUNDING & RESOURCES	STATUS	TARGET DATE	EXTENT RATING	EFFECT. RATING
Rules and Regulations for On-site Wastewater Management	Fannin County Board of Health, Environmental Health Office	Stringent application/enforcement of the regulations	Local county government/ State Department of Human Resources	A	In place; on-going	5	5 (in new develop-ment)
Septic System Repair Assistance Program	Fannin County Government, Fannin County Environmental Health Office	Seek State/Federal grants to cost/share with land owners the repair of failing systems or install new systems to replace straight pipes	Section 319(h) Grant through Ga. Environmental Protection Division (60% grant/40% match)	N/R	6/2006	3	5
Agriculture BMP Installation Assistance Program	Fannin County Government/ Ga. Soil and Water Conservation Commission	Seek State/Federal grants to cost/share with land owners the installation of agriculture BMPs (pasture management, fencing along streams, alternative water supplies for cattle, poultry manure stackhouses), etc.	Section 319(h) Grant through Ga. Environmental Protection Division (60% grant/40% match)	N/R	6/2006	3	5
Environmental Quality Incentives Program (EQIP)	Natural Resources Conservation Service	Voluntary program that provides technical and cost share assistance for protection of water resources via pasture management, stream bank and water body protection including livestock access limitation.	Federal (Farm Bill 2002) 50% cost share with possible additional incentive payments.	A	6/2006	1	3
Conservation	Natural Resources	Provides technical assistance, rental	Federal	A	6/2006	1	1

Reserve Program	Conservation Service	payments and cost share funding to address specific natural resource concerns including protection of ground and surface waters, soil erosion and wildlife habitat. Eligible practices include tree planting, grassed waterways, wildlife habitat buffers, and shallow water area for wildlife and filter strips.	Annual rental payment for land taken out of production and 50% cost share for practice installation.				
Georgia Rules and Regulations for Water Quality Control, Chapter 391-3-6-20&21 for CAFOs 301 to 1000 animal units	Georgia Dept. of Agriculture, Georgia Environmental Protection Division	Outlines the Swine and non-swine Feeding Operation Permit Requirements for Concentrated Animal Feeding Operations (CAFOs) with more than 300 animal units. CAFOs of more than 300 but equal to or less than 1000 animal units receive a land application system (LAS) permit. Larger CAFOs with more than 1000 animal units must obtain a NPDES permit from EPD.	Federal and State	A	In place, on-going	1	5 (in new develop-ments)
National Pollutant Discharge Elimination System (NPDES) Permit Regulations for CAFOs over 1000 animal units	U.S. Environmental Protection Agency & Ga. Environmental Protection Division	Permitting program created to protect and improve water quality by regulating Concentrated Animal Feeding Operations (CAFOs) and providing minimum permit requirements for CAFOS of more than 1000 animal units.	Federal and State	A	In place, on-going	1	5 (in new develop-ments)
Sanitary Sewer Maintenance Program	City of McCaysville	Sanitary sewer system inventory and inspection; infiltration & inflow identification and reduction; sewer line and manhole rehabilitation	Federal, State, local governments	A	In place, on going	3	5

The purpose of Table 5B is to initiate and guide a “first-cut” evaluation of the capacity of existing, currently proposed, and future required management measures and activities to achieve the load reductions specified in the TMDL (and meet water quality goals) and where needed, identify potential feasible and effective measures and practices which could be encouraged and supported to further reduce pollutant loadings from significant potential sources. Though completely voluntary, such recommendations would provide an effective local guide to effective management actions to achieve local water quality goals, establish priorities for grant or loan programs (Section 319 (h), EQUIP, SRF), establish eligibility for grants for Tier plans and implementation, and identify priorities for local watershed assessments and protection plans.

In Columns 1 and 2 of Table 5B, enter each significant potential source and its’ corresponding impact ratings from Table 3. Review Table 5A and list significant management practices and activities applicable to each significant cause or source. Evaluate and compare the estimated extent and relative contribution of each significant cause or source with the extent and effectiveness of the applicable management measures and in conjunction with appropriate local stakeholders or organizations, make a best current determination of whether the existing or proposed management practices would achieve the load reductions needed to achieve the TMDL. Summarize conclusions and rationale in Column 4. If

more information is needed to adequately determine the significant sources or causes and their relative contributions so note and recommend management actions needed to adequately identify sources such as monitoring, watershed assessments, or Tier 1 implementation plans in the last column. If the current, proposed and required management measures are judged inadequate to achieve the needed load reductions for significant sources, recommend, in consultation with the advisory groups, additional management activities, programs, and measures which would effectively reduce pollutant loads from the source. List such measures in the final column and list as a recommended activity in the milestones (Table 8).

TABLE 5B: EVALUATION OF MANAGEMENT MEASURES AND ACTIVITIES APPLIED TO SPECIFIC SOURCES OR CAUSES

APPLICABLE TO SPECIFIC PARAMETER: fecal coliform bacteria .

SIGNIFICANT POTENTIAL SOURCE (S) OR CAUSE(S) (From Table 3)	**IMPACT RATING** (From Table 3)	**EXISTING, CURRENTLY PROPOSED, OR REQUIRED MANAGEMENT MEASURES OR ENHANCEMENTS APPLICABLE TO EACH SIGNIFICANT SOURCE** (From Table 5A)	**EVALUATION: WILL THE ESTIMATED EXTENT OF APPLICATION AND EFFECTIVENESS OF EXISTING, CURRENTLY PROPOSED, AND REQUIRED MANAGEMENT MEASURES BE ADEQUATE TO ACHIEVE THE SOURCE REDUCTION SPECIFIED BY THE TMDL?**	**IF MANAGEMENT MEASURES ARE ESTIMATED TO BE INSUFFICIENT, RECOMMEND ADDITIONAL MANAGEMENT MEASURES AND ACTIVITIES WHICH COULD EFFECTIVELY REDUCE LOADS FROM SIGNIFICANT SOURCES**
Malfunctioning Septic Systems or straight pipes to streams	9	Rules and Regulations for On-Site Wastewater Management (Fannin County Board of Health, Environmental Health Office)	Effective administration and enforcement of existing rules will prevent or minimize future failures. If sufficiently funded, the Septic System Repair program could effectively reduce 75 to 100% of fecal coliform coming from this source.	Successful implementation will require education of landowners and effective marketing of the program's availability.
		Septic System Repair Assistance (Fannin County govt., Fannin County Health Dept.)		
Active pasture run-off – Cattle & horse access to streams; poultry operations	3	Cost share of Agricultural BMPs (pasture management, fencing along streams, alternative water sources, etc. (Fannin County, Ga. SWCS)	If sufficiently funded, and fully utilized by local farmers, these programs could effectively reduce 75 to 100% of fecal coliform from these sources.	Successful implementation of these programs will require effective technical assistance, education and marketing to farmers.
		EQIP Program (NRCS)		
		Conservation Reserve Program (NRCS)		
		Georgia Rules and Regulations for Water Quality Control, Chapter 391-3-6-20&21 for CAFOs of 300 to 1000 animal units	Application of these permit requirements apply to new developments. If effectively administered, these programs will eliminate 75 – 100 % of fecal coliform from these sources.	No additional management measures are needed.
		National Pollutant Discharge Elimination System (NPDES) Permit Regulations for CAFOs greater than 1000 animal units		No additional management measures are needed.
Sewer System leaks and spills	.5	Sanitary sewer system inventory and inspection; infiltration & inflow identification and reduction; sewer line and manhole rehabilitation (City of McCaysville)	If sufficiently funded and implemented, these activities will eliminate 75 – 100 % of fecal coliform from these sources.	No additional management measures are needed.

VII. MONITORING PLAN

The purposes of monitoring are to obtain more data to determine the sources of pollution, describe baseline conditions, and evaluate the effects of management and activities on water quality. Describe any sampling activities or other surveys - active, planned or proposed (including monitoring required for watershed assessments, or stormwater permits) - and their intended purpose. Reference the development and submission of a Sample Quality and Assurance Plan (SQAP) if monitoring for listing decisions.

Table 6. MONITORING PLAN

PARAMETER (S) TO BE MONITORED	ORGANIZATION	STATUS (CURRENT, PROPOSED, PLANNED)	TIME FRAME		PURPOSE (If for delisting, date of SQAP submission)
			START	END	
pH, Chemicals, Bio-diversity, fecal coliform	Blue Ridge Adopt-a-Stream	pH, chemicals, bio-diversity currently underway and to be continued; fecal coliform proposed.	1/01/2007	On-going as funds allow	Monitor TMDL Implementation impacts.

VIII. PLANNED OUTREACH FOR IMPLEMENTATION

List and describe outreach activities, including those described in the Scope of Services that will be conducted to support this plan and the implementation of it.

Table 7. PLANNED OUTREACH

RESPONSIBILTY	DESCRIPTION	AUDIENCE	DATE
NGRDC	Distribute copies of the Plan	To all stakeholders & local governments	4/15/2006
NGRDC/County	Prepare and distribute press release describing the plan and where to attain copies	To the local newspapers	4/30/2006
NGRDC/County	Prepare Power Point presentations and present to civic groups & local agencies	Civic Groups and local agencies	5/15/2006
Blue Ridge Adopt-a-Stream	Will conduct general public education activities regarding non-point pollution sources	Local citizens in Fannin County	On going as funds allow

IX. MILESTONES/ MEASURES OF PROGESS OF BMPs AND OUTREACH

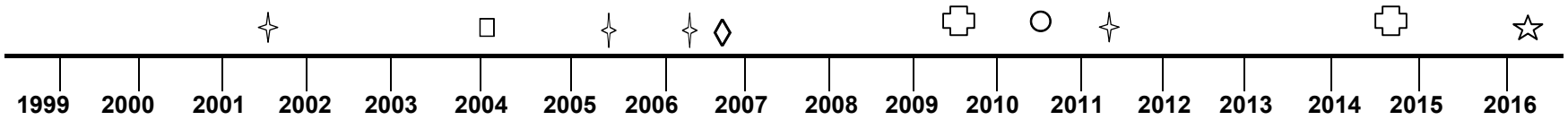
This table will be used to periodically track and report progress of significant management practices and activities identified or recommended in Tables 5A, 5B, and other sections of this plan, including outreach, additional monitoring and assessments, and the enhancement or installation of management measures and activities. Identify and list significant planned or recommended activities and the target date of accomplishment. Provide room to comment on the effectiveness of the management measure, how much support the measure was given by the community, what was learned, how the measure might be improved in the future, and any other observations made. This table can be "pulled out" of this template and used to report and track progress.

Table 8. MILESTONES

MANAGEMENT MEASURE OR ACTIVITY	RESPONSIBLE ORGANIZATIONS	STATUS		COMMENT
		PROPOSED	INSTALLED	
Rules and Regulations for On-site Wastewater Management	Fannin County Board of Health, Environmental Health Office		X	The environmental health office will continue to effectively enforce and administer the existing regulations.
Septic System Repair Assistance Program	Fannin County Government, Fannin County Environmental Health Office	X		County or NGRDC to apply for the Section 319(h) grant in 2006
Agriculture BMP Installation Assistance Program	Fannin County Government/ Ga. Soil and Water Conservation Commission	X		County or Ga. Soil& Water Conservation Commission to apply for Section 31(h) grants in 2006
Environmental Quality Incentives Program (EQIP)	Natural Resources Conservation Service		X	Program assistance is available. Program outreach needs to be conducted. Assistance provided to farmers as requested.
Conservation Reserve Program	Natural Resources Conservation Service		X	Program assistance is available. Program outreach needs to be conducted. Assistance provided to farmers as requested.
Georgia Rules and Regulations for Water Quality Control, Chapter 391-3-6-20&21 for CAFOs 301 to 1000 animal units	Georgia Dept. of Agriculture, Georgia Environmental Protection Division		X	Permits will be issued as needed.
National Pollutant Discharge Elimination System (NPDES) Permit Regulations for CAFOs over 1000 units	U.S. Environmental Protection Agency & Ga. Environmental Protection Division		X	Permits will be issued as needed.
Sanitary sewer system inventory and inspection; infiltration & inflow identification and reduction; sewer line and manhole rehabilitation	City of McCaysville		X	Activities are on-going as funds are available

PROJECTED ATTAINMENT DATE

The projected date to attain and maintain water quality standards in this watershed is 10 years from acceptance of the TMDL Implementation Plan by Georgia EPD.



Scheduled EPD Basin Group Monitoring ✦
TMDL Completed □
Revised TMDL Implementation Plan Accepted ◊
Plan Status Evaluation Report ✚
Plan Update or Revision, if Necessary ○
Project Attainment for Plans Prepared in 2006 ☆

Prepared By:	Larry Vanden Bosch				
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E-mail:	dceds@ngrdc.org				
Date Submitted to EPD:	March 31, 2006			Revision:	

APPENDIX A.

STAKEHOLDERS

List the names, addresses, telephone numbers, and e-mail addresses for local governments, agricultural or commercial forestry organizations, significant landholders, businesses and industries, and local organizations including environmental groups and individuals with a major interest in this watershed.

NAME/ORG	ADDRESS	CITY	STATE	ZIP	PHONE	E-MAIL
Dr. Richard Volrath, Fannin Co. Commission	400 West Main Street, Suite 100	Blue Ridge	GA	30513	706-632-2203	
Steve Morris, Fannin Co. Commission	400 West Main Street, Suite 100	Blue Ridge	GA	30513	706-632-2203	
Randy Collins, Fannin Co. Commission	400 West Main Street, Suite 100	Blue Ridge	GA	30513	706-632-2203	
Kristen Gunia, Fannin's Future Committee	P.O. Box 1916	Blue Ridge	GA	30513	706-4450	cwills@fannindevelopment.com
Doug Cabe, Limestone Valley RC&D	125 Redbud Rd. N.E. Suite 7	Calhoun	GA	30701	706-625-7044	lvrcd@pointlink.net
Jerry Jennings, Northwest Georgia Regional Water Resources Partnership	P.O. Box 1793	Rome	GA	30162	706-295-6485	
Mayor James Finch, City of McCaysville	P.O.Box 6	McCaysville	GA	30555	706-492-4921	
Larry Golsen, Blue Ridge Adopt-a-Stream		McCaysville	GA	30555	706-492-2099	larrygol@bellsouth.net
Keith Gilmer, Georgia Soil and Water Conservation Commission	700 East 2nd Avenue, Suite J	Rome	GA	30161	706-295-6131	keith_gilmer@ga.usda.gov
Doug Towery, Natural Resources Conservation Service	185 Wellborn Street, Box 3	Blairsville	GA	30512	706-745-2794 ext. 3	doug.towery@ga.usda.gov

APPENDIX B.

UPDATES TO THIS PLAN

Describe any updates made to this plan. Include the date, section or table updated, and a summary of what was changed and why.

APPENDIX C
VISUAL FIELD SURVEY

Visual Field Survey

For

Fightingtown Creek TMDL Segment (CR 159 to Stateline)

September 2005

Prepared by the North Georgia Regional Development Center.

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INTRODUCTION

1.1 Location

Fightingtown Creek is located in the north central portion of Fannin County. The majority of the Fightingtown Creek watershed lies within the Fannin County line, but there is very small portion of the watershed in Tennessee (Figure 1). The TMDL segment begins at CR 159 and ends at the Stateline between Georgia and Tennessee.

1.2 Watershed Description

The Fightingtown Creek TMDL segment watershed is comprised of 19,432.45 acres of land inside of Fannin County (Figure 2). The TMDL segment is located within HUC 10 – 0602000302 and flows north. Based upon our 2004 existing land use data for Fannin County, mapping of the TMDL segment watershed shows that land cover within the watershed is varied. Roughly 53% of the land is classified as vacant, 24% is classified as residential, 12% is in conservation, and 6% of the land is classified as agricultural. The table below breaks down each land cover and their percentage in the Fightingtown Creek watershed.

Table 1. Watershed Land Cover

Land Cover Classification	Area (Acres)	% of Total Area
Agriculture	1244.2	6.40%
Commercial	136.12	0.70%
Multi-Family	11.09	0.07%
Public/Institutional	59.05	0.30%
Conservation	2317.47	11.93%
Residential	4731.97	24.35%
Vacant	10345.13	53.24%
Right of Way (Roads)	505.99	2.60%
Transportation, Communication, Utilities	12.98	0.07%
parks, recreation	50.65	0.26%
water	17.8	0.08%
Total	19,432.45	100%

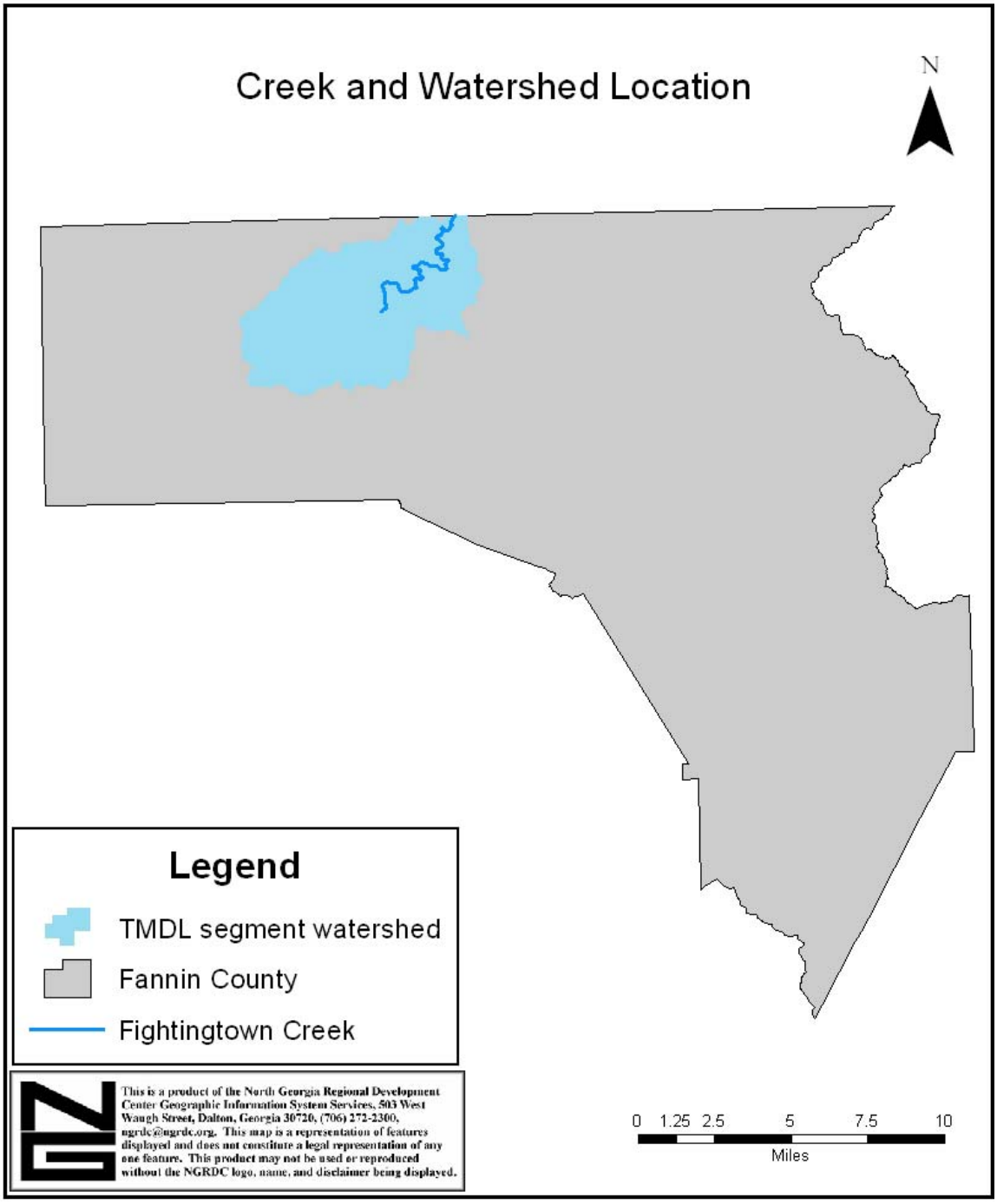

Figure 1. Location of Fightingtown Creek and Watershed.

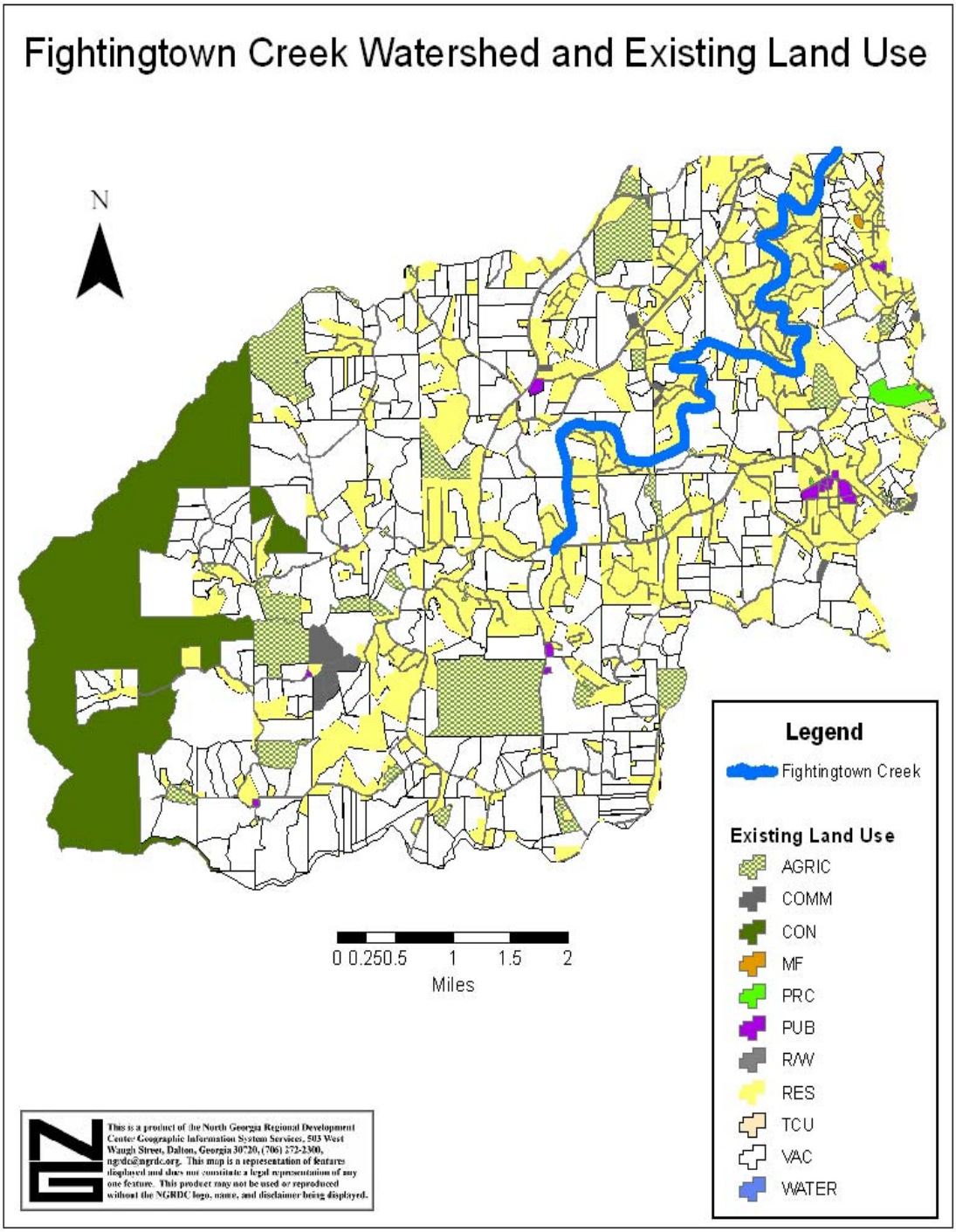

Figure 2. Land Cover for Fightingtown Creek Watershed.
*Land cover data not available for the portion of the watershed located in Tennessee

2.0 METHODOLOGY

The Source Water Assessment Project (SWAP, December 2003) was studied to determine the locations of any known point sources and potential individual sources of pollution in relation to the area of interest. Known potential individual sources of pollution located in the Fightingtown Creek watershed are shown in Figure 3. Aerial photos were also used as another means to compile information and further evaluate the area.

A windshield survey of the watershed area adjacent to the stream segment was the initial step. There are 2 road crossings on the Fightingtown Creek TMDL segment. Both road crossings (Madola road and Tranquil road) were visited during the windshield survey. The stream was not conducive to walking for reasons such as private property and no trespassing signs posted. The road crossings were not the only places in the watershed that were visited however. Many potential problem areas within the TMDL stream segment were visited to confirm land use aerial photography. The purpose of the stream segment visual survey was to identify and observe possible sources of pollution. Observations were documented and captured in photographs of the stream channel and its surroundings.

3.0 Field Findings

3.1 General Characteristics

The field findings discussed here are the results of the visual survey at road crossings as well as visual surveys throughout the entire TMDL stream segments watershed. A pretty thick vegetative buffer bordered the Fightingtown Creek TMDL segment, but there are also areas with houses right along the shoreline with virtually no vegetative buffer at all. The Creek had a nice moving flow, and it did not seem to be congested with much debris. General photographs of the stream condition at access points to the segment are shown below in Figures 4-5.

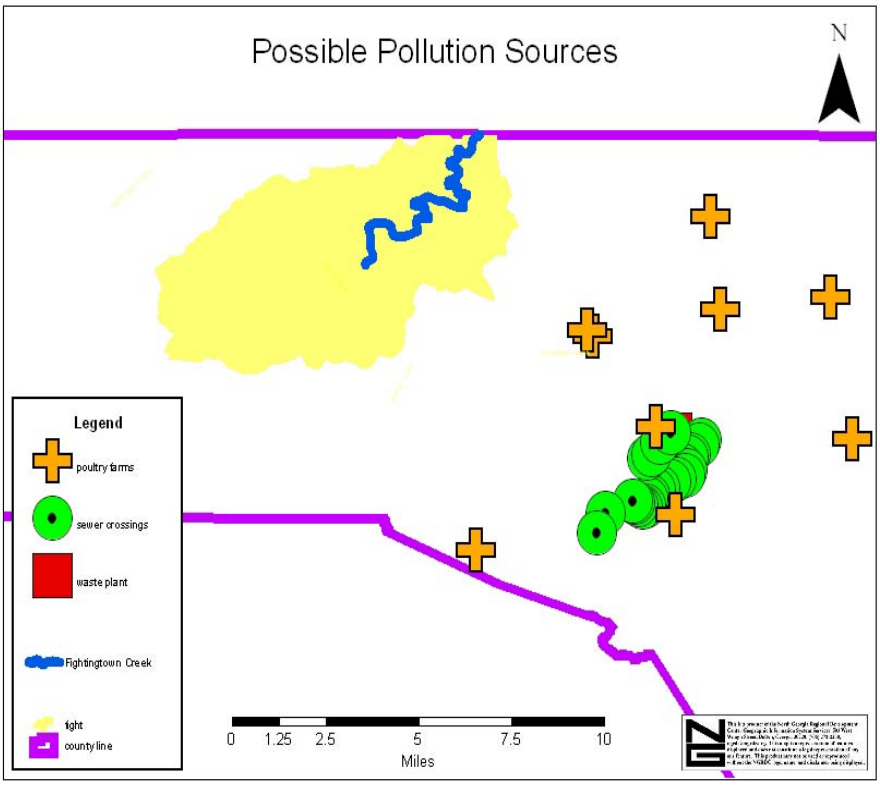

Figure 3. Potential Individual Sources of Pollution Identified in NGRDC's Source Water Assessment Project (December 2003).

3.2 Point Sources

As seen in Figure 3, there are no point sources located directly in the Fightingtown Creek watershed. There is one wastewater treatment plant in Fannin County, but it is not located in this watershed.

3.3 Non-Point Sources

The land is either undeveloped or served by septic tank systems. The watershed is rural in nature, and has numerous farms with cows and horses that may have non-permitted animal feeding operations. There is a good amount of wildlife in this area as well.

Figure 4. Madola Road crossing Fightingtown Creek.

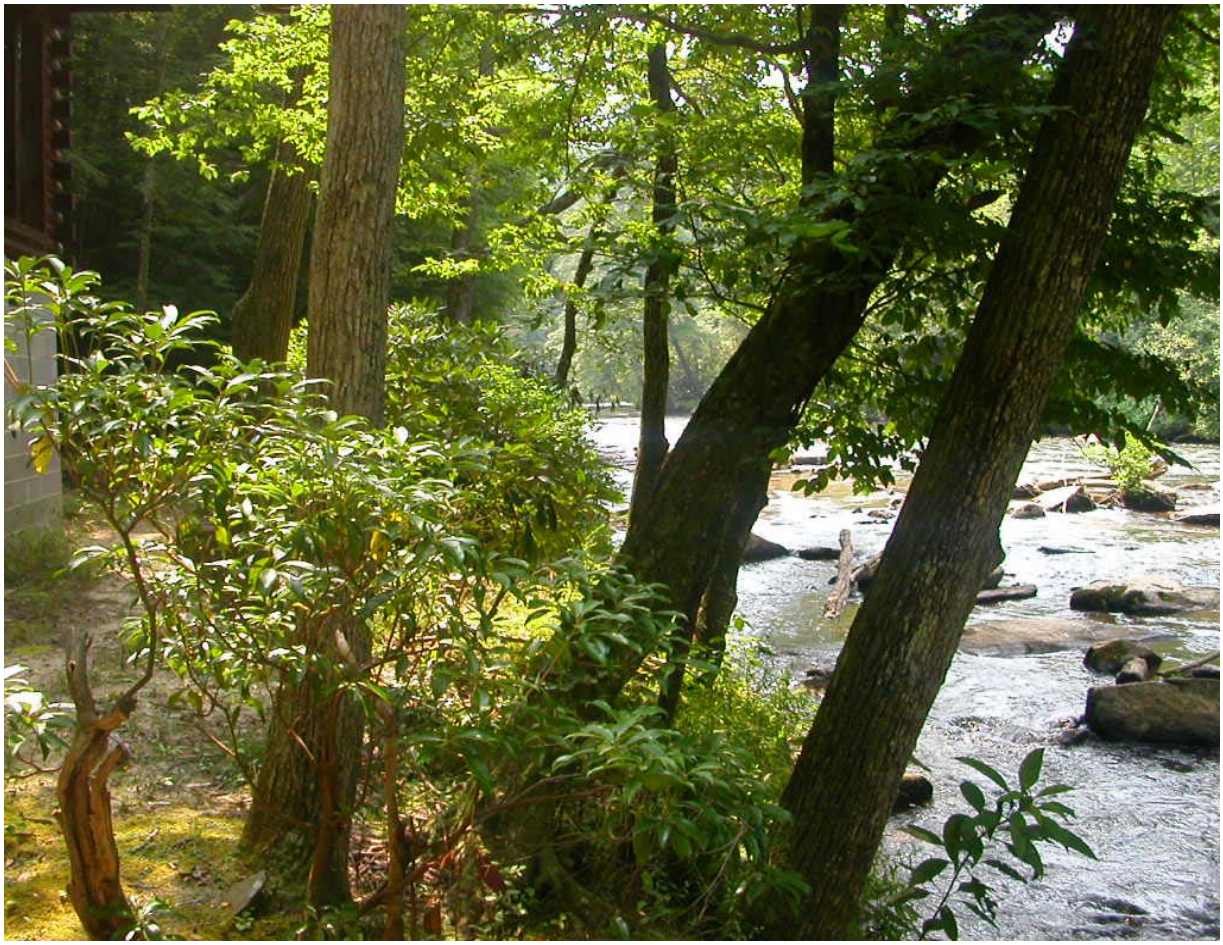

Figure 5. Looking upstream of Tranquil Road.

4.0 Ranks Assigned To Pollution Sources

There are a variety of pollution sources that are affecting the Fightingtown Creek TMDL segment. Urban runoff is considered a moderate source of fecal coliform bacteria affecting the entire TMDL segment. Animal waste from the surrounding wildlife is a potential low to moderate source of fecal coliform, as well as waste from horse or cattle farms. These sources are affecting the TMDL segment in sporadic areas. Leaking or failing septic tanks are also another moderate source of fecal coliform bacteria affecting areas almost entirely along the stream segment.

5.0 Summary of Findings

There were no point source discharges in the TMDL segment watershed. However, there are many non-point sources in the TMDL stream segments watershed. The field survey and background investigation identified urban runoff, wildlife and domestic waste, and possible septic tank leaking and/or failure.